4th Earth Science Data System Working Group Joint Meeting
Baltimore Convention Center
Baltimore, Maryland
October 25 – 27, 2005

Metrics Planning and Report Working Group
Breakout Session #1 Minutes – October 25, 2005

The Breakout Session had seventeen attendees, including six REASoN Projects. Attachment 1 is a list of first day attendees. (Note: Attachments are described at the end of this report and are included as separate files.)

1. Introduction   Rama

Rama presented an MPAR WG overview that included a high-level summary of the WG, status of the FY2005 Work Plan, and the schedule and agenda for Breakout Sessions. See Attachment 2

2. Metrics – HQ point of view   Frank Lindsay

Frank gave NASA HQ's view on metrics by challenging the WG to define metrics that are worth collecting and also to better define the role of the MPAR WG. He briefed on the new leadership at HQ and noted that the new AA for Science Mission Directorate, Mary Cleave, is tuned into the metrics effort and will be a valuable proponent of the effort.

Frank mentioned that 15 ACCESS (Advancing Collaborative Connections for Earth-Sun System Science) proposals were recently awarded. ACCESS activities will work on services supporting the interfaces between data activities and their users. The announcement did not specifically request awardees to collect and report REASoN metrics, but ACCESS projects will be required to report metrics (to be determined) and that some ACCESS projects should participate in the MPAR WG. Kathy commented that a metrics specification like REASoN Attachment A would be included in the final negotiated agreements with ACCESS activities.

Frank noted that all REASoNs were funded to participate in DSWG activities, and this was not optional.

A new data set initiative – ESDRs (Earth Science Data Records) – was described. NASA ESDRs will contain long-term, high-quality, science data sets that will be used for research and applications by the NASA science community. Frank indicated that ESDRs will likely create new needs for metrics.

Concerning specific metrics, Frank stated that impact metrics are still very important and the MPAR WG needs to continue its development of this class of metrics. Also, metrics characterization of highly distributed data systems will present challenges to metrics collection that should be addressed by the WG.

Kathy noted that production metrics remain a requirement of Headquarters and advisory groups.

Concerning the role of the MPAR WG, Frank asked: 1) How do we advise HQ? (The WG revisited its original "Rules of Operation" that defined this process), 2) Science data product reviews are placing more emphasis on metrics that show measurable science efficiency. In light of this, the WG should examine 'efficiency' metrics, and 3) The WG should seriously examine metrics collection automation, especially where Web services can be captured and reported.

In the course of the discussion, Kathy noted that there would likely be another set of activities included in next year's ROSES program

3. Updates to Website   Paul Davis

Paul briefed on the latest set of changes (Phase 2) to the U of MD metrics collection tool. He raised a concern – a better understanding of what the Study Managers need from MPAR is critical since they are one of the principal customers of the WG's effort.

Paul also reminded the WG that the tool's glossary (definition of metrics terms) has a lot of room for improvement.

4. Migration to GSFC site – status   Kathy Fontaine

Kathy mentioned that the U of MD metrics collection tool is in the process of being migrated to a GSFC server and the operation should be phased over in about a month, hopefully in time for the submission of November metrics (i.e. mid December)

Concerning specific metrics, Rama stated that not every project will report on, for example, data volume; some projects are more service oriented, like education REASoNs.

5. Resolution of Reporting "Anomalies"   Greg Hunolt

Greg Hunolt reported on the progress of the FY05 Metrics Review towards a clean-as-possible set of FY05 REASoN metrics. He noted that of the 41 active REASoN projects, 30 have reported at least some metrics. Of the 41 active REASoNs, 29 have provided an initial response to Greg's inquiry and of those 14 REASoNs have provided a substantial response including revisions to their FY05 metrics for filling in missing metrics. Greg thanked the REASoNs that have responded so far. Greg then presented results of the review for each metric, describing the issues raised on each and suggesting modification

to the baseline definition of the metrics to resolve the issues where possible. The basic suggestion made by Greg was to recognize the diversity of the REASoN projects and therefore generalize the definitions of the metrics away from data products distributed by websites to embrace services and a full range of modes of interaction including personal. The goal is to complete the FY05 Metrics Review in about a month. REASoN projects will have until November 30 to provide responses to Greg, who will provide a report including FY05 metrics summaries to Kathy and Rama as soon as possible thereafter.

6. Thoughts on Education Metric (Metric #10)   John Pickle

John made a point of recognizing the value of cross-sharing Metrics 8-9-10 information across the various REASoNs. In particular, education REASoNs would benefit greatly from metrics collected by science and application REASoNs.

7. Education REASoNs' Survey   Glen Schuster

Glenn briefed the WG on the education survey he is developing. Once approved, the survey will be sent to 750 teachers to solicit feedback and evaluation of education deliverables.

8. Introduction to next day's topics   Rama

Rama charged the WG to be prepared to discuss 3 metrics issues at Breakout Session #2: service metrics, efficiency metrics, and other project-unique metrics.

Metrics Planning and Report Working Group
Breakout Session #2 Minutes – October 26, 2005

The breakout session started with two brief presentations by Paul Davis and Kevin Murphy.

1. Paul Davis

Paul briefed on the June 6, 2005, NASA HQ meeting with Study Managers. New metrics tool enhancements were discussed, including separate login for Study Managers and PIs, and restricted viewing of the color-coded REASoN Report Status page. Paul also mentioned that GLCF is using some components of NetTracker, a commercial package, for automating metrics collection and reporting. He stated that metrics questions 1, 2, 3, 5, 6, and partial 7 can be collected by NetTracker using site Web log files.

Paul is planning to add a new user interface for Study Mangers, giving them easier access to metrics for the projects they are responsible for.

In the course of the discussion Frank Lindsay asked if Metric 7 (average and standard deviation of response times) is meaningful anymore for this set, given the evolution

toward consistently fast on-line services? Frank noted that if metric 7 were to be dropped NASA would have to drop it from the GPRA metrics list first.

In the course of the discussion 'number of repeat visitors' or 'number of repeat users' was suggested as a possible metric.

In the course of the discussion Frank noted that individual projects need metrics to manage their own activities, and that NASA needs metrics to measure its own successes and to pass those measures of success forward.

Kathy noted that NASA also needs REASoN metrics to understand which activities are successful in meeting their and NASA's objectives. NASA wants to know that activities like REASoN projects can be successful before funding more of them.

2. Kevin Murphy

Kevin briefed on NetTracker and its implementation to support ESDIS EDGRS (ESDIS Data Gathering and Reporting System). License costs may be an issue for multi-site configurations. The WG also noted that similar packages are available at no cost. Also, cost of implementation and maintenance has to be factored into any decision to implement any package, freeware or commercial.

Next on the agenda, Paul Davis moderated a discussion of "Ideas from REASoN Project attendees on Service, Efficiency and Project-Unique Metrics." Six projects briefed on this topic.

3. Mike Goodman

Mike suggested a re-visit of the metric, "Number of publications resulting from data usage," including non-peer review papers such as press releases, conference papers, presentations, etc.

Mike also suggested:

a. Percentage reduction of data submitted for subsetting – custom processing. (Measures effectiveness of subsetting in reducing volume of data sent to users.)

b. Instances of services invoked (e.g. file format conversions, subsetting) – custom processing.

c. Requests for educational assistance (e.g. primary, secondary, collegiate) – expert knowledge. [Requests for scientific explanations of the products.]

(Custom processing, expert knowledge are elements of the NASA 'vision'.)

4. John Pickle

John presented a chart outlining Paula Coble and Ming Ying Wei's (the NASA study managers for the education REASoNs) needs for metrics. The chart suggests different categories for metric 10 that could replace the current metric 10.   See Attachment 3.

5. Wes Berg

Wes presented ideas on Service, Efficiency, and Project-Unique Metrics. See Attachment 4.   The importance of balancing needs for a variety of metrics with demands on REASoNs was stressed, as well as improved communications with Study Managers regarding reported metrics.

6. Glen Schuster

Glen presented ideas on efficiency from an educational perspective. See Attachment 5. Potential sources of efficiency metrics can be found in proposed work, i.e., meeting milestones vs. impact on Education System, and from Teachers, Students, and Administrators.

7. Peter Cornillon

Peter briefed on his OPeNDAP REASoN. OPeNDAP is a highly distributed system that distributes both data and software, and therefore presents a challenge to defining and collecting appropriate metrics. Peter mentioned that one useful "efficiency" metric could be derived from that fact that more users are retrieving subsets of data.

Peter suggested that the MPAR WG ask each REASoN what is most important to it and use this to derive a metric, or what was the most important thing you've done in the past month?

The WG agreed that selling is the main point with metrics, and selling occurs at different levels.

Kathy reminded the WG that metrics should be tied to what was originally proposed in their REASoN proposals. She asked of REASoN projects, can you go back to your proposal and pick a metric that measures what you proposed to provide?

8. Paul Davis

Paul mentioned that the GLCF can measure user data subsetting, a potentially valuable metric for efficiency.

Paul discussed metrics that GLCF is now collecting internally in some form:

Service Measures
      ESDI (Earth Science Data Inventory) measuring searching vs downloads
      Subset tool – measuring subsets vs (currently) whole data set
      LC-COMPS – measuring blended data vs (currently) discrete datasets
      Ortho – measuring input data vs (currently) discrete datasets

Efficiency
      Reports to NASA
      Customer emails
      Study Manager Reports
      Publications / Presentations

Uniqueness Measures
      Large volume and variability
      Classroom usage
      Research feeder service
      Customer service
      Data Mirrors, Data Grids, OPeNDAP
      Extra Achievements

Four items were raised during the Breakout Session wrap-up:

1. Rama stressed that the WG must decide on recommendations to HQ, agree on an FY2006 Work Plan, and finalize charts for the ESDSWG plenary the following day.

2. Frank Lindsay commented that the MPAR WG needs a process, similar to the Standards Process Group, to conduct business. More on this in the next Breakout Session.

3. Rama noted that there was common agreement to keep existing core of metrics, with some changes, at least for now, to keep impact metrics, and to add REASoN-specific metrics. Wes Berg suggested having a list of examples of possible REASoN-specific metrics that REASoNs could pick from as well as add their own metrics. Kathy noted that ACCESS activities are all service oriented and could use project-specific metrics to measure their services.

4. Paul asked if the MPAR-WG could solicit science and applications program managers to do what education program managers have done; i.e. critique the existing metrics and provide guidance as to what changes to the metrics they would like to see. Rama agreed to pursue this with the science and applications study managers. Kathy noted that metrics 8, 9, 10 are intended to let REASoNs show how they are helping to meet NASA's goals (Per their proposals to do so.)

Metrics Planning and Report Working Group
Breakout Session #3 Minutes – October 27, 2005

1. Metrics WG Process

In response to Frank Lindsay's comments, Greg Hunolt reviewed the WG's process that was developed in January 2004 in Orlando. The process was called "Rules of Operation." The WG discussed the process, modified a voting rule, and agreed to the final "Rules of Operation." The revised text is included in Rama's Summary to Plenary Session, Attachment 9.

2. The education REASoNs agreed to provide a revised Question 10 within a week or two.

3. Rama asked that some measure of development effort (e.g., how many lines of code were developed with how many staff-months) be made available by the REASoN Projects for NASA's records and use in cost models for use in assessing future costs. Bud Booth and Paul Davis agreed to complete the data collection for the GLCF for the Cost Estimation Tool and use this experience to determine the best approach to including other REASoN projects in the CET's Comparables Database.

4. Recommendations to NASA Headquarters

Greg Hunolt presented a set of charts containing draft recommendations for changes to the baseline metrics. These were discussed one by one by the MPAR WG, and a final package of draft recommendations was agreed to. According to the MPAR-WG process, the package of draft recommendations will be circulated to all of the REASoNs for comments and suggested changes if any.

Highlights of the package (see Attachment 6 for the full package) include:

a) A draft "mission statement" stating why metrics are being collected and reported by REASoN projects currently and also ACCESS projects in the near future:

"To measure the success of each project in meeting its stated goals and objectives, to show the role and contribution of each project to the NASA science, application, and education programs, and to enable an overall assessment of the success of programs such as REASoN / ACCESS and their contribution to NASA's goals.

This implies that the metrics will be a mixture of project-specific metrics and common metrics, overall measures with sufficient cross-project commonality, and all reported by most if not all projects, to allow assessment of the REASoN / Access (etc.) program(s) as a whole."

b. Addition of one or more project-specific, project-defined metrics.

c. Splitting of metrics 3 and 4 (products and product types) into separate products and services and product types and service type metrics.

d. Deletion of metric 7 (or a revision as a fall back).

e. Replacement of metric 10 (education) with an entirely new metric based on Paula Coble and Ming-Ying Wei's metrics needs (the final text of this recommendation to be worked out in consultation with Paula and Ming-Ying).

Otherwise baseline metric definitions are recommended to be generalized to better allow for the diversity of REASoN and ACCESS projects.

5. New Metrics Samples

The WG discussed potential new impact/outcome metrics such as enabling faster utilization of data, size/growth of user community, and support for publication/education. Sample metrics were also discussed for education projects and project-specific examples such as OPeNDAP's highly distributed structure and GLCF-Unique. New metric samples are listed in Attachment 7.

6. FY2006 Work Plan

The WG agreed to a draft FY2006 Work Plan that is shown in Attachment 8.

7. MPAR WG Plenary Brief

Rama presented the plenary presentation – Attachment 9 – that included breakout summaries, Rules of Operation, and Future Considerations/Issues.

Metrics Planning and Report Working Group
Baltimore Action Items

1. Designate Shepherd for Metrics recommendations. (From WG's Rules of Operation in Attachment 9.)

2. Shepherd to circulate draft recommendations for metrics 1 – 7 to REASoN projects for review and comment, 30 day response needed. (See Action Item #1 above.) Review and comment for metrics 8 – 10 will follow after HQ coordination is completed.

3. Rama to meet with science and applications study managers to review metrics 8 and 9 with them and to make sure their needs are being met.

4. REASoN projects to respond to the FY05 Metrics Review by November 30, 2005.

5. Glen Schuster and John Pickle to provide a draft for the new metric 10 in consultation with Paula Coble and Ming-Ying Wei.

List of Attachments

Attachment 1	List of Attendees
Attachment 2	Rama MPAR WG Introduction
Attachment 3	NASA HQ Education Metrics Needs
Attachment 4	Wes Berg's Efficiency Metrics
Attachment 5	Glen Schuster's Efficiency Metrics
Attachment 6	Draft Metrics Recommendations for HQ
Attachment 7	New Metrics Samples
Attachment 8	Draft FY2006 Work Plan
Attachment 9	Rama's Summary to Plenary Session